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Resource Prospector: A lunar volatiles prospecting and ISRU demonstration mission

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Abstract Text:

A variety of recent observations have indicated several possible reservoirs of water and other volatiles. These volatiles, and in particular water, have the potential to be a valuable or enabling resource for future exploration. NASA's Human Exploration and Operations Mission Directorate (HEOMD) Advanced Exploration Systems (AES) is supporting the development of Resource Prospector (RP) to explore the distribution and concentration of lunar volatiles prospecting and to demonstrate In-Situ Resource Utilization (ISRU). The mission includes a NASA developed rover and payload, and a lander will most likely be a contributed element by an international partner or the Lunar Cargo Transportation and Landing by Soft Touchdown (CATALYST) initiative. The RP payload is designed to: (1) locate near-subsurface volatiles, (2) excavate and analyze samples of the volatile-bearing regolith, and (3) demonstrate the form, extractability and usefulness of the materials. RP is being designed with thought given to its extensibility to resource prospecting and ISRU on other airless bodies and Mars. This presentation will describe the Resource Prospector mission, the payload and measurements, and concept of operations

Topic Selection: The Science of Exploration as enabled by the Moon, Near Earth Asteroids and the moons of Mars

Title: Resource Prospector: A lunar volatiles prospecting and ISRU demonstration mission

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